

# Chapter 87

## *New and Future Technology*



Name \_\_\_\_\_

Date \_\_\_\_\_

Instructor \_\_\_\_\_

Score \_\_\_\_\_

**Objective:** After studying this chapter, you will be able to summarize developments in security technology and energy storage systems.

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### Security Technologies

1. What is a vehicle tracking system?

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2. Name the components of a vehicle tracking system.

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3. What happens when a vehicle with a tracking system is stolen?

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4. *True or False?* A vehicle tracking system is usually small, allowing it to be easily hidden on the vehicle. \_\_\_\_\_

5. *True or False?* Vehicle tracking systems do not provide protection during a carjacking or kidnapping. \_\_\_\_\_

6. How does a night vision system help the driver see?

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## Vehicle Operation Technologies

7. Describe how an electric brake caliper works.

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8. Electronic brake systems are much (heavier/lighter) \_\_\_\_\_ than hydraulic brakes, helping to (reduce/increase) \_\_\_\_\_ fuel consumption.

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9. A(n) \_\_\_\_\_ brake, or \_\_\_\_\_ brake, uses a dash-mounted switch and an electric servo motor to mechanically apply the rear brake.

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10. Kinetic energy recovery systems (KERS) use either a(n) \_\_\_\_\_ mechanism or a(n) \_\_\_\_\_ to store the energy captured until it is needed.

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11. What would be the benefit of future vehicles having automatic tire wear adjustment systems?

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## Alternate Power Sources

12. Name four alternate power sources, besides gasoline and diesel, to propel a motor vehicle.

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13. Name an advantage of electric vehicles.

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Name \_\_\_\_\_

14. Explain a drawback to electric vehicles.

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15. Describe a flywheel generator drive system.

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*For questions 16–21, match the following terms and identifying phrases.*

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|--|----------------------|
| _____ 16. Uses a large, high-efficiency motor and large storage batteries to power the automobile.   | (A) Hydrogen fuel    |
| _____ 17. It combines hydrogen and oxygen to produce electrical energy.  | (B) Solar vehicle    |
| _____ 18. It uses the power of the sun to generate electricity for propulsion.   | (C) Gas turbine      |
| _____ 19. Can be created from animal fats or vegetable oils.   | (D) Biodiesel fuel   |
| _____ 20. It produces little or no air pollution; water vapor is the only by-product of combustion.  | (E) Fuel cell        |
| _____ 21. An alternate type of engine that can burn a wide variety of fuels and produces a tremendous amount of smooth power for its size. | (F) Electric vehicle |

22. What are flexible-fuel vehicles (FFV)?

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23. Which three fuels can gas turbine engines burn?

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24. Why are gas turbines not currently in use?

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25. As the world's petroleum reserves dwindle, the prices of petroleum-based fuels are bound to (rise/fall) \_\_\_\_\_.

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26. Plant fuel research has led to the development of \_\_\_\_\_ fuel.

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27. One plant fuel already in wide use is \_\_\_\_\_.

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28. \_\_\_\_\_ motor oil has been created from farm-grown plants and vegetables, and performs as well as crude oil-based lubricants.

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## Future Vehicle Construction

29. What is the most important factor in improving fuel economy?

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30. What materials are now being used to make vehicle body panels?

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31. What are inflatable door impact beams? How can they assist in vehicle safety?

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32. In the future, what may replace R-134a as a refrigerant because of its ecofriendly properties?

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